



Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

CASE NARRATIVE**0053573**

314 298-8566 Telephone
314 298-8757 Fax

Bechtel Hanford Incorporated
3190 George Washington Way
Richland, Washington 99352

June 21, 2000

Attention: Joan Kessner

Project Number	:	34780
SAF	:	B99-025
SDG	:	W03163
Number of Samples	:	one (1)
Sample Matrix	:	Liquid
Data Deliverable	:	Summary
Date SDG Closed	:	June 7, 2000

RECEIVED
AUG 17 2000

EDMC**II. Introduction**

On June 7, 2000, one (1) "liquid" sample was received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analysis. The sample was received at the St. Louis lab on 6/08/00 at 11 degrees C. See the attached Sample Summary form for the Lab ID's and corresponding Client Ids.

III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits.

Analyses requested: VOA - 8260 (TCL)
Specific Gravity - SM18 2710F Mod. (Density)

Deviation from Request: None

IV. Definitions

The following codes are used to denote laboratory quality control samples and can be found in the data summary section of this report:

QCBK- Quality Control Blank, Method Blank
QCLCS- Quality Control Laboratory Control Sample, Blank Spike
MS- Matrix Spike.
DUP- Matrix Duplicate
MSD- Matrix Spike Duplicate.



Bechtel Hanford Incorporated
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V. Comments

General:

The term "Detection Limit" used in the analytical data reports refers to either the lab's standard reporting limits or contractually required reporting limits, whichever is applicable.

Please refer to the attached cross-reference table for the standard preparation methods used at Quanterra, St. Louis.

Preliminary data was sent via facsimile on 6/13/00.

VOA:

A Laboratory Control Sample, Lab Control Sample Duplicate and Method Blank were analyzed with each preparation batch per the protocol for this analysis. An MS/MSD was not done due to limited sample volume, the dilution applied, the sample matrix and the radiation levels in the sample. LCS/LCSD recoveries were within criteria.

The sample was analyzed using a 100,000 fold dilution. A medium level extraction was done taking 1 ml to 5 ml. 1 ml of that was diluted 1:100. Then 25 ul of that solution was taken to 5 ml and run on the instrument. A library search was done to look for chloronaphthalenes. Surrogates were diluted out.

A Density value was also determined for the sample.

I certify that this Summary is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Reviewed and approved:

A handwritten signature in cursive script, appearing to read "Marti Ward", written over a horizontal line.

Marti Ward
St. Louis Project Manager

SAMPLE SUMMARY

F0F080226

WO #	SAMPLE#	CLIENT	SAMPLE ID	DATE	TIME
DEDKM	001	BOTLB6		06/02/00	10:30

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

METHODS SUMMARY**F0F080226**

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Density	SM18 2710 F Mod	
Volatile Organics by GC/MS	SW846 8260B	SW846 5030

References:

SM18	"Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992.
SW846	"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

STL St. Louis

PSL20300
Page 1

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 6/08/00
Time: 13:38:32
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 233-S
REPORT TO: Bechtel Hanford, Inc.

P.O. NUMBER: MRC-SBB-A-19981
SITE: B99-025

AMOUNT REC'D: 60G
STORAGE LOC: V10

LOT COMMENTS: limited volume - no QC run LCS/LCSD
MATRIX: WATER

SAMPLE ID: B0TLB6

QC PACKAGE: Special Report - see checklist

SAMPLE COMMENTS:

DETERMINE DENSITY VALUE!!!!!!!!!!!!

Beginning Depth: .00 Ending Depth: .00

QUOTE/SAR #: 36780
LAB ID: F-0F080226-001
WORK ORDER: DEDKM
RECEIVING DATE: 6/07/00
SAMPLING DATE: 6/02/00
ANALYTICAL DUE DATE: 6/28/00N
REPORT DUE DATE: 6/28/00
PRIORITY: 21
SAMPLING TIME: 10:30
RECEIVING TIME: 14:30

SDG# : W03163

***** ANALYSIS *****

WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
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Volatile Organics, GC/MS (8260B)	06	6/08/00	0/00/00	6/16/00
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PURGE AND TRAP - 5 mL purge

STL: SW-846 8260B

(I-15-QK-01) DEDKM-1-01 Protocol: A QC Program: STANDARD TEST SET

Fr 67.00

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B99-025-6		Page 1 of 2		
Collector <i>R. Thoren</i> <i>Doug Bowers FAHLBERG, RT</i>		Company Contact Dave Encke		Telephone No. 373-3461		Project Coordinator TRENT, SJ		Price Code 9L Data Turnaround 21 Days		
Project Designation 233-S Plutonium Concentration Facility Process Areas - Oth		Sampling Location 233-S bldg 200 west		SAF No. B99-025		Air Quality <input type="checkbox"/>				
Ice Chest No. 4GV/X4/S/O		Field Logbook No. EFL 1133-7		COA R233SP280C		Method of Shipment fed ex				
Shipped To Severn Trent Incorporated		Offsite Property No. NA		Bill of Lading/Air Bill No. NA						
POSSIBLE SAMPLE HAZARDS/REMARKS TOXIC LIQUID, ORGANIC RADIOACTIVE Special Handling and/or Storage <i>RADIOACTIVE NONE</i> <i>6/17/00</i>			Preservation	None	NONE					
			Type of Container	aGs*	Ø					
			No. of Container(s)	1	Ø					
			Volume	60mL	Ø					
SAMPLE ANALYSIS W03163			VOA - R260A (TCL)		Specific gravity					
Sample No.	Matrix *	Sample Date	Sample Time							
B0TLB6	OTHER LIQUID	6-2-00	1030	X	X		10% Full			
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *		
Relinquished By <i>R. Thoren</i> Date/Time <i>6-2-00</i> <i>R. Thoren 6-2-00/0800</i>		Received By <i>FED EX</i> Date/Time		** If limited sample volume is available, contact Sample Management for analyses priority. PERFORM ALL ANALYSIS FROM 60 ML POLYBOTTLE Page 2 of 2 represents Custody of Sample sent to RCF For GEA analysis. This chain represents Custody transfer and label change for offsite analysis Sampler not available to relinquish sample.				S=Soil SB=Soil/Sand SO=Solid S=Sludge W=Water O=Oil A=Air DS=Dry Solid DL=Dry Liquid T=Trace WP=Wipe L=Liquid V=Vegetation X=Other		
Relinquished By <i>FED EX</i> Date/Time <i>6-2-00</i>		Received By Date/Time								
Relinquished By Date/Time		Received By Date/Time								
Relinquished By Date/Time		Received By Date/Time								
Relinquished By Date/Time		Received By Date/Time								
LABORATORY SECTION		Received By <i>Marissa Spaw</i>		Title <i>STL Sample Control Supervisor</i>		Date/Time <i>06-05-00 0840</i>				
FINAL SAMPLE DISPOSITION		Disposed Method		Disposed By		Date/Time				

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				Page 2 of 2	
Collector <u>R. Fahlberg/Kamsi</u>	Company Contact <u>D. Enck</u>	Telephone No.		Project Coordinator <u>S. Trent</u>	Price Code	Data Turnaround	
Project Designation <u>2335 Other liquid</u>	Sampling Location <u>2335</u>	SAF No. <u>BTF-025</u>		Air Quality <input type="checkbox"/>			
Ice Chest No. <u>ERC-97-029</u>	Field Logbook No. <u>EL1381-3</u>	COA <u>RC33SP280C</u>	Method of Shipment <u>Hand Delivered</u>				
Shipped To <u>RCF</u>	Offsite Property No. <u>NA</u>	Bill of Lading/Air Bill No. <u>NA</u>					
POSSIBLE SAMPLE HAZARDS/REMARKS		Preservation	<u>None</u>	<u>None</u>	Bechtel Hanford Inc. <u>NA</u> SAF No.: <u>850-000</u> Collector: <u>Fahlberg</u> Bottle: <u>100ml - R</u> Sample No. <u>BOX 235</u> Pres. <u>None</u> Date Sampled <u>6/12/00</u> Time: Place Sampled: <u>2335</u> Analysis: <u>GFA</u>		
		Type of Container	<u>25</u>	<u>P</u>			
		No. of Container(s)	<u>1</u>	<u>1</u>			
		Volume	<u>60ml (Dom)</u>				
Special Handling and/or Storage Cool to 4 degrees C.		SAMPLE ANALYSIS					
		<u>GFA GFA</u>					
					<u>RCF</u>		
Sample No.	Matrix *	Sample Date	Sample Time				
<u>BOX 235</u>	<u>liquid</u>	<u>6-12-00</u>	<u>1030</u>	<u>X</u>	<u>7967</u>		
CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS			Matrix *
Relinquished By <u>R. Fahlberg</u>	Date/Time <u>6-2-00</u>	Received By <u>J. Duffey</u>	Date/Time <u>6-2-00</u>	This sample originally sent TO RCF for GFA. page 1 of 2 Represents custody transfer and label change for offsite analysis (30)			S-Soil SP-Sediment SO-Solid S-Storage W-Water O-Other A-Air DL-Dross Solids LL-Dross Liquids T-Tissue WP-Water L-Liquid V-Vegetation X-Other
Relinquished By <u>R. Fahlberg</u>	Date/Time <u>6-6-00</u>	Received By <u>D. Enck</u>	Date/Time <u>6-6-00</u>				
Relinquished By <u>R. Fahlberg</u>	Date/Time <u>6-6-00</u>	Received By <u>R. Fahlberg</u>	Date/Time <u>6-6-00</u>				
Relinquished By	Date/Time	Received By	Date/Time				
Relinquished By	Date/Time	Received By	Date/Time				
LABORATORY SECTION		Received By		Title			Date/Time
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By			Date/Time



000647

Condition Upon Receipt Variance Report St. Louis Laboratory

Lot No.: F0F080226

W03163

Client: WASTE MGTDate: 06-08-00 Time: 1840Quote No: 36780Initiated by: MSPShipper/No: PO BOX 813350072872RFA/COC Numbers: B99-025-6

Condition/Variance (Check all that apply):

1. <input type="checkbox"/> Sample received broken/leaking.	8. <input type="checkbox"/> Sample ID on container does not match sample ID on paperwork. Explain: _____
2. <input type="checkbox"/> Sample received without proper preservative.	
<input checked="" type="checkbox"/> Cooler temperature not within $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$	
Record temperature: <u>11.3°</u>	
<input type="checkbox"/> pH _____	9. <input type="checkbox"/> All coolers on airbill not received with shipment.
<input type="checkbox"/> other: _____	10. <input type="checkbox"/> Sample volume insufficient for analysis
3. <input type="checkbox"/> Sample received in improper container.	11. <input type="checkbox"/> Other (explain below)
4. <input type="checkbox"/> Sample received without proper paperwork. Explain: _____	
5. <input type="checkbox"/> Paperwork received without sample.	
6. <input type="checkbox"/> No sample ID on sample container.	
7. <input type="checkbox"/> Custody tape disturbed/broken/missing/not tamper evident type (circle all that apply).	

☐ No variances were noted during sample receipt.☒ Cooler Temperature Upon Receipt in $^{\circ}\text{C}$: 11.3°

Temperature Variance Does Not Affect the Following Analyses: _____

Notes: _____

Corrective Action:

<input type="checkbox"/> Client's Name: _____	Informed verbally on: _____	By: _____
<input type="checkbox"/> Client's Name: _____	Informed in writing on: _____	By: _____
<input type="checkbox"/> Sample(s) processed "as is".	_____	
<input type="checkbox"/> Sample(s) on hold until: _____	If released, notify: _____	

Sample Control Supervisor Review: [Signature] Date: 06-08-00Project Management Review: [Signature] Date: 6.8.00

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

SL-ADMIN-0004, Revised 03/06/00

BECHTEL HANFORD, INC.

Client Sample ID: B0TLB6

GC/MS Volatiles

Lot-Sample #....: F0F080226-001 Work Order #....: DEDKM101 Matrix.....: WATER
 Date Sampled....: 06/02/00 Date Received...: 06/07/00
 Prep Date.....: 06/09/00 Analysis Date...: 06/09/00
 Prep Batch #....: 0164151
 Dilution Factor: 100 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chloromethane	ND	1000000	ug/L	280
Vinyl chloride	ND	500000	ug/L	340
Bromomethane	ND	1000000	ug/L	67
Chloroethane	ND	1000000	ug/L	84
Acetone	4200000	2000000	ug/L	1000
1,1-Dichloroethene	ND	500000	ug/L	120
Methylene chloride	2000000	500000	ug/L	500
Carbon disulfide	ND	500000	ug/L	160
1,1-Dichloroethane	ND	500000	ug/L	50
2-Butanone	ND	2000000	ug/L	250
1,2-Dichloroethane (total)	ND	500000	ug/L	140
Chloroform	ND	500000	ug/L	82
1,1,1-Trichloroethane	ND	500000	ug/L	83
Carbon tetrachloride	ND	500000	ug/L	120
1,2-Dichloroethane	ND	500000	ug/L	98
Benzene	ND	500000	ug/L	130
Trichloroethene	ND	500000	ug/L	120
1,2-Dichloropropane	ND	500000	ug/L	110
Bromodichloromethane	ND	500000	ug/L	120
4-Methyl-2-pentanone	ND	2000000	ug/L	190
cis-1,3-Dichloropropene	ND	500000	ug/L	110
Toluene	ND	500000	ug/L	110
trans-1,3-Dichloropropene	ND	500000	ug/L	170
1,1,2-Trichloroethane	ND	500000	ug/L	160
2-Hexanone	ND	2000000	ug/L	300
Tetrachloroethene	ND	500000	ug/L	150
Dibromochloromethane	ND	500000	ug/L	130
Chlorobenzene	ND	500000	ug/L	170
Ethylbenzene	ND	500000	ug/L	160
Xylenes (total)	ND	500000	ug/L	340
Styrene	ND	500000	ug/L	120
Bromoform	ND	500000	ug/L	260
1,1,2,2-Tetrachloroethane	ND	500000	ug/L	290

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	DIL	(64 - 120)
Toluene-d8	DIL	(77 - 125)
Dibromofluoromethane	DIL	(75 - 139)
1,2-Dichloroethane-d4	DIL	(70 - 130)

(Continued on next page)

BECHTEL HANFORD, INC.

Client Sample ID: B0TLB6

GC/MS Volatiles

Lot-Sample #....: F0F080226-001 Work Order #....: DEDKM101 Matrix.....: WATER

NOTE(S) :

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

BECHTEL HANFORD, INC.

B0TLB6

GC/MS Volatiles

Lot-Sample #: F0F080226-001

Work Order #: DEDKM101

Matrix: WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
UNKNOWN		2100000	M 2.567	ug/L
Naphthalene, 2-chloro-	91-58-7	690000	M 27.774	ug/L
Naphthalene, 1-chloro-	90-13-1	10000000	M 27.896	ug/L

NOTE(S) :

M: Result was measured against nearest internal standard assuming a response factor of 1.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: F0F080226
 MB Lot-Sample #: F0F120000-151

Work Order #...: DEJ49101

Matrix.....: WATER

Analysis Date...: 06/09/00
 Dilution Factor: 1

Prep Date.....: 06/09/00

Prep Batch #...: 0164151

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Chloromethane	ND	10000	ug/L	SW846 8260B
Vinyl chloride	ND	5000	ug/L	SW846 8260B
Bromomethane	ND	10000	ug/L	SW846 8260B
Chloroethane	ND	10000	ug/L	SW846 8260B
Acetone	ND	20000	ug/L	SW846 8260B
1,1-Dichloroethene	ND	5000	ug/L	SW846 8260B
Methylene chloride	ND	5000	ug/L	SW846 8260B
Carbon disulfide	ND	5000	ug/L	SW846 8260B
1,1-Dichloroethane	ND	5000	ug/L	SW846 8260B
2-Butanone	ND	20000	ug/L	SW846 8260B
1,2-Dichloroethene (total)	ND	5000	ug/L	SW846 8260B
Chloroform	ND	5000	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	5000	ug/L	SW846 8260B
Carbon tetrachloride	ND	5000	ug/L	SW846 8260B
1,2-Dichloroethane	ND	5000	ug/L	SW846 8260B
Benzene	ND	5000	ug/L	SW846 8260B
Trichloroethene	ND	5000	ug/L	SW846 8260B
1,2-Dichloropropane	ND	5000	ug/L	SW846 8260B
Bromodichloromethane	ND	5000	ug/L	SW846 8260B
4-Methyl-2-pentanone	ND	20000	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	5000	ug/L	SW846 8260B
Toluene	ND	5000	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	5000	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	5000	ug/L	SW846 8260B
2-Hexanone	ND	20000	ug/L	SW846 8260B
Tetrachloroethene	ND	5000	ug/L	SW846 8260B
Dibromochloromethane	ND	5000	ug/L	SW846 8260B
Chlorobenzene	ND	5000	ug/L	SW846 8260B
Ethylbenzene	ND	5000	ug/L	SW846 8260B
Xylenes (total)	ND	5000	ug/L	SW846 8260B
Styrene	ND	5000	ug/L	SW846 8260B
Bromoform	ND	5000	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5000	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	88	(64 - 120)
Toluene-d8	87	(77 - 125)
Dibromofluoromethane	111	(75 - 139)
1,2-Dichloroethane-d4	98	(70 - 130)

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: F0F080226

Work Order #...: DEJ49101

Matrix.....WATER

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

BECHTEL HANFORD, INC.

Method Blank Report

GC/MS Volatiles

Lot-Sample #: F0F120000-151 B Work Order #: DEJ49101

Matrix: WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

<u>PARAMETER</u>	<u>CAS #</u>	<u>ESTIMATED RESULT</u>	<u>RETENTION TIME</u>	<u>UNITS</u>
Unknown		26	M 2.534	ug/L

NOTE(S) :

M: Result was measured against nearest internal standard assuming a response factor of 1.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #....: F0F080226 Work Order #....: DEJ49102-LCS Matrix.....: WATER
 LCS Lot-Sample#: F0F120000-151 DEJ49103-LCSD
 Prep Date.....: 06/09/00 Analysis Date...: 06/09/00
 Prep Batch #....: 0164151
 Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
1,1-Dichloroethene	2500	2240	ug/L	89		SW846 8260B
	2500	2110	ug/L	85	5.6	SW846 8260B
Benzene	2500	2370	ug/L	95		SW846 8260B
	2500	2380	ug/L	95	0.37	SW846 8260B
Trichloroethene	2500	2060	ug/L	82		SW846 8260B
	2500	2070	ug/L	83	0.43	SW846 8260B
Toluene	2500	2220	ug/L	89		SW846 8260B
	2500	2340	ug/L	93	5.3	SW846 8260B
Chlorobenzene	2500	2390	ug/L	96		SW846 8260B
	2500	2380	ug/L	95	0.58	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	81	(64 - 120)
	80	(64 - 120)
Toluene-d8	92	(77 - 125)
	97	(77 - 125)
Dibromofluoromethane	97	(75 - 139)
	98	(75 - 139)
1,2-Dichloroethane-d4	93	(70 - 130)
	93	(70 - 130)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

BECHTEL HANFORD, INC.

Client Sample ID: B0TLB6

General Chemistry

Lot-Sample #...: F0F080226-001

Work Order #...: DEDKM

Matrix.....: WATER

Date Sampled...: 06/02/00

Date Received...: 06/07/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Density	1030		g/L	SM18 2710 F Modif	06/09/00	0167344
		Dilution Factor: 1		MDL.....:		